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10/037,067	12/21/2001	David E. Clune	Clune 3-4-18	5463

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EXAMINER

NEURAUTER, GEORGE C

ART UNIT PAPER NUMBER

2143

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/037,067

Applicant(s)

CLUNE ET AL.

Examiner

George C. Neurauter, Jr.

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/19/02
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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Art Unit: 2143

### DETAILED ACTION

Claims 1-15 are currently presented and have been examined.

#### *Claim Objections*

Claim 9 is objected to because of the following informalities:

Claim 9 should end with a period.

Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 2143

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6 219 352 to Bonomi et al in view of "The Art of Computer Programming: 2<sup>nd</sup> Edition" to Knuth.

Regarding claim 1, Bonomi discloses a method for identifying destination nodes of a multicast session in a network having a plurality of nodes, comprising: forming a linked list ("queue") comprising a plurality of destination node entries each having an associated address; identifying an address ("head pointer") for entering the list at an initial destination node entry; traversing the linked list; and terminating the traversing step prior to reaching the initial

Art Unit: 2143

destination node entry (at the "tail pointer"). (column 13, lines 40-column 14, line 2, specifically column 13, lines 46-60)

Bonomi does not expressly disclose a circularly linked list, however, Knuth does disclose a circularly linked list (page 270, section 2.2.4 "Circular Lists", specifically "A circularly-linked list...has the property that its last node links back to the first...It is then possible to access all of the list starting at any given point")

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Knuth discloses that using a circularly linked list allows for entry into the list at any point (page 270, section 2.2.4 "Circular Lists", specifically "It is then possible to access all of the list starting at any given point"). In view of these specific advantages and that the references are directed to traversing linked lists or queues and entering a linked list at a given point, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor.

Regarding claim 2, Bonomi and Knuth disclose the method of claim 1.

Art Unit: 2143

Bonomi discloses the method further comprising receiving data intended for transmittal to the identified destination nodes of the multicast session. (Figure 2, step 220; column 7, line 54-column 8, line 36, specifically column 7, lines 56-61; column 13, lines 46-48)

Regarding claim 3, Bonomi and Knuth disclose the method of claim 2.

Bonomi discloses wherein the initial destination node entry is determined from the received data. (column 10, lines 12-60, specifically lines 16-22; column 11, lines 18-47).

Regarding claim 4, Bonomi and Knuth disclose the method of claim 2.

Bonomi discloses wherein at least one destination node of the list, as determined from the received data, is excluded from the multicast session. (column 14, lines 17-25).

Regarding claim 5, Bonomi and Knuth disclose the method of claim 4.

Bonomi discloses wherein the received data includes an indicator identifying the destination node that is to be excluded from the multicast session. (column 14, lines 17-25)

Regarding claim 6, Bonomi and Knuth disclose the method of claim 5.

Art Unit: 2143

Bonomi discloses wherein the indicator identifies the destination node from which the data was received as the destination node to be excluded from the multicast session. (column 2, lines 45-67; column 14, lines 17-25).

Regarding claim 7, Bonomi and Knuth disclose the method of claim 1.

Bonomi discloses wherein the initial destination node entry is predetermined (column 13, lines 40-column 14, line 2, specifically column 13, lines 52-55)

Regarding claim 8, Bonomi and Knuth disclose the method of claim 1.

Bonomi discloses the method further comprising receiving data intended for transmittal to the identified destination nodes of the multicast session on an input port, and wherein the initial destination node entry is determined based on the input port. (column 10, lines 12-60, specifically lines 16-22; column 11, lines 18-47; column 14, lines 47-58)

Regarding claim 9, Bonomi and Knuth disclose the method of claim 1.

Bonomi discloses wherein the address for entering the list is the destination node from which the data was received. (column 10, lines 12-60, specifically lines 16-22; column 11, lines 18-47)

Art Unit: 2143

Regarding claim 10, Bonomi and Knuth disclose The method of claim 1.

Bonomi discloses wherein the traversed destination node entries are the identified destination nodes of the multicast session. (column 13, lines 46-60)

Regarding claim 11, Bonomi and Knuth disclose the method of claim 1 wherein destination node entries for a plurality of multicast sessions are interleaved in a list, and wherein the destination node entries for each one of the plurality of multicast sessions are linked. (column 13, lines 18-25)

Bonomi does not expressly disclose a circularly linked list, however, Knuth does disclose this limitation (page 270, section 2.2.4 "Circular Lists", specifically "A circularly-linked list...has the property that its last node links back to the first...It is then possible to access all of the list starting at any given point").

Claim 11 is rejected since the motivations regarding the obviousness of claim 1 also apply to claim 11.

Regarding claim 12, Bonomi and Knuth disclose the method of claim 1.

Bonomi discloses wherein each destination node entry includes link information ("memory address"), and wherein the step of traversing the linked list comprises traversing the



Art Unit: 2143

linked list according to the link information at each destination node entry. (column 10, lines 12-60, specifically lines 16-22; column 11, lines 18-47; column 13, lines 40-column 14, line 2, specifically column 13, lines 46-60)

Regarding claim 13, Bonomi and Knuth disclose the method of claim 12.

Bonomi discloses wherein the link information comprises a pointer at each destination node entry that points to another destination node entry such that the plurality of destination node entries are linked.

Bonomi does not disclose wherein the destination node entries are circularly linked, however, Knuth does disclose wherein entries are circularly linked (page 270, section 2.2.4 "Circular Lists", specifically "A circularly-linked list...has the property that its last node links back to the first...It is then possible to access all of the list starting at any given point").

Claim 13 is rejected since the motivations regarding the obviousness of claim 1 also apply to claim 11.

Claim 14 is rejected since claim 14 recites a method that contains substantially the same limitations as recited in claims 1 and 12 in combination.

Art Unit: 2143

Claim 15 is rejected since claim 15 recites an apparatus that contains substantially the same limitations as recited in claim 1.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art teaches the state of the art in traversing linked lists or queues for multicasting applications:

US Patent 5 095 480 to Fenner et al;

US Patent 5 875 189 to Brownhill et al;

US Patent 6 188 690 to Holden et al;

US Patent 6 310 879 to Zhou et al;

US Patent 6 396 834 to Bonomi et al;

US Patent 6 762 995 to Drummond-Murray et al;

US Patent 6 822 958 to Branth et al;

US Patent Application Publication 2002/0021701 to Lavian et al;

US Patent Application Publication 2003/0088694 to Patek et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Neurauter, Jr. whose telephone number is (571) 272-3918. The

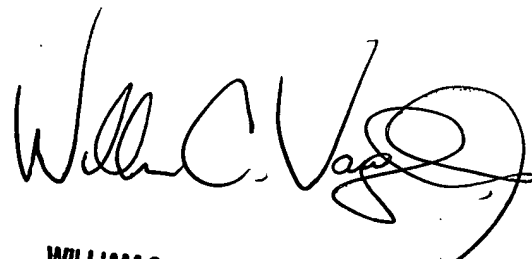
Art Unit: 2143

examiner can normally be reached on Monday through Friday from 9AM to 5:30PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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WILLIAM C. VAUGHN, JR.  
PRIMARY EXAMINER  
25 May 05